



ACCESS HEALTHCARE

A patient centric practice model to improve management of chronic disease

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Abstract

Uncontrolled chronic conditions like hyperlipidemia, hypertension, and diabetes put patients at unnecessary risk for events like strokes and heart attacks. Effectively controlling these conditions in an outpatient setting reduces the likelihood of strokes and heart attacks which is beneficial from both health and cost perspectives. In an effort to increase the quality of care at a small outpatient center in North Carolina, information on patient diagnosis information, as well as blood pressure, LDL cholesterol and A1C results were reviewed. This baseline data on the control of hypertension, hyperlipidemia, and diabetes was collected and compared to national rates of control of these conditions. Though the percentages of patients with a diagnosis have their condition controlled are higher than national rates, there remain patients of the practice with uncontrolled chronic conditions. Future research should be aimed at identifying why these patients do not have their condition controlled, and on implementing treatment regimens to control their conditions.

Introduction

The leading cause of death in the United States is heart disease, with stroke as the 5th leading cause, and diabetes at 7th (National Center for Health Statistics, 2015). Each year these diseases not only claim hundreds of thousands of lives (National Center for Health Statistics, 2015), but cost our society billions of dollars (Tchwenko, 2012). Two major conditions which increase an individual's risk of heart disease and stroke are hypertension and hyperlipidemia (CDC, 2014).

Hypertension, hyperlipidemia, as well as diabetes can be effectively controlled in an outpatient setting, thus preventing much more serious outcomes. However, many patients continue to have these three key conditions uncontrolled. According to the CDC (2014) only 46.3% of Americans had controlled blood pressure, and only 29.5% had controlled cholesterol. Among diabetics, an estimated 79% had their A1C less than 9.0% (CDC, 2014).

The Direct Primary Care Model is value based model rather than a traditional fee for service model. It is designed to allow access to quality primary care for patients, and to allow physicians to spend more time with their patients to improve health outcomes (Eskew and Klink, 2015). In order to assess the current level of control of chronic conditions of the practice's patients, data was collected from patient charts. By collecting this data, the present level of chronic condition control can be assessed, as well as indicate areas for further improvement within the practice model.

Methods

Patient charts of all patients seen by a selected provider over a one year period, August 1, 2015 to July 31, 2016 were reviewed. If the patient were diagnosed with hypertension, hyperlipidemia, or diabetes was recorded. A patient was considered to be diagnosed if the diagnosis was specified in the patient's chart or if the patient had been prescribed a medication for one of these three conditions. The patient's most recent blood pressure, LDL cholesterol, and A1C were recorded.

Results

Data on patient's blood pressure, LDL cholesterol, and A1C were collected from patient charts as well as diagnosis information. The percentage of patients with their hypertension, hyperlipidemia, and diabetes controlled was calculated. Of the 284 patients included in this study, 77.11 percent were diagnosed with hypertension, 83.09 percent were diagnosed with hyperlipidemia, 23.23 percent were diagnosed with diabetes, and 9.15 percent of patients did not have any three of these diagnoses. Of these three diagnoses, patients had on average 1.834 +/- 0.868 diagnoses. The average age of patients was 58.757 +/- 13.064 years.

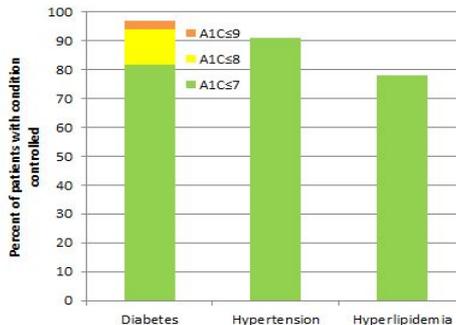


Figure 1: Percentage of patients with their condition controlled.

Diabetes control: green is percentage with A1C<7%, yellow A1C<8%, and orange A1C<9%, n=65. Hypertension: blood pressure<140/90, or 150/90 for patients aged 60 or older, n=219. Hyperlipidemia: LDL cholesterol<100 mg/dL, n=23. Figure 1 shows the practice's current level of control of chronic conditions. The percentage of diabetic patients with their A1C presently meeting the American Diabetes Association (2016) recommendation of less than 7 percent is 81.538 percent. 93.846 percent of patients had their A1C less than 8 percent, and 96.923 percent of patients had their A1C less than 9 percent.

Also shown on Figure 1 is that 90.867 percent of patient with hypertension have their condition controlled with their blood pressure at 140/90 or less for patients under 60 years old, or under 150/90 for patients aged 60 or older. The percentage of patients diagnosed with hyperlipidemia who have their condition controlled with their LDL cholesterol less than 100 mg/dL is 77.777 percent.

Discussion

In order to assess present levels of the control of three chronic conditions, hypertension, hyperlipidemia, and diabetes of patients in a small DPC practice, information from patient charts was assessed. Hyperlipidemia had the lowest level of control, with only 77.7 percent of patients diagnosed with this condition having an LDL cholesterol level less than 100 mg/dL. However, nationally, this condition is not as well controlled, with only 29.5 percent of patients having their cholesterol controlled according to a 2014 CDC report. A One Population-Proportion test shows significant differences between the national level of control of hyperlipidemia and that of the practice, with a p<0.001 (z=16.16).

Similarly hypertension is significantly better controlled at the DPC practice when compared to the national average of 44 percent (CDC, 2014) through a One Population-Proportion test, p<0.001 (z=13.651). Diabetes control in the DPC practice was also significantly better than the national rate of 79% of patients with an A1C less than 9.0 percent (CDC, 2014), p<0.001 (z=3.54).

Though the control of these three chronic conditions is better in the DPC practice than nationally, there are still patients whose conditions are not controlled. Though a systematic study of the reasons for why some patients do not have their condition controlled has not been carried out, possible reasons are lack of medication adherence, particularly with regards to diabetic patients using less insulin than prescribed, as well as an unwillingness to begin a medication regimen, particularly among patients with hyperlipidemia who do not want to take statins. Having this data on the present level of control of chronic diseases allows the practice to assess the effectiveness of quality improvement projects aimed at improving outcomes, as well as indicates which chronic conditions need to be targeted by such quality improvement projects.

Works Cited

American Diabetes Association. Glycemic targets. Sec. 5. In Standards of Medical Care in Diabetes 2016. Diabetes Care 2016;39(Suppl. 1):S39-S46.

CDC. CDC National Health Report: Leading Causes of Morbidity and Mortality and Associated Behavioral Risk and Protective Factors - United States, 2005-2013. MMWR. 2014; 63(4).

Eskew PM and Klink K. Direct Primary Care: Practice Distribution and Cost Across the Nation. JABFM. 2015; 28(6): 793-801.

National Center for Health Statistics. Health, United States, 2015: With Special Feature on Racial and Ethnic Health Disparities. Hyattsville, MD, 2016.

Tchwenko SN. Burden of Cardiovascular Disease in North Carolina - September, 2012. Raleigh, N.C.: N.C. Department of Health and Human Services; 2012. Available at: <http://startwithyourheart.com/Default.aspx?pn=CVDBurden>.